Health Care Costs: Framework for Investigation

Equilibrium pricing--Supply and Demand factors that affect cost and expenditure in an unregulated, unsubsidized market.

Demand and Quantity Demanded*—Theory and Empirical Evidence on the Effect of Prices and Income On Individual Treatment Decisions*

1. Price—the extent to which people purchasing a particular treatment can understand the tradeoff between the treatment that they want and other goods
    a. Of the treatment itself
    b. Of substitute goods—free care, different treatments, opting for no care (doing nothing)
    c. Of complimentary goods—things that must be used with treatment
        i. Travel
        ii. Time—both waiting time and time required for treatment adherence
        iii. Pain and suffering
        iv. Idiosyncratic considerations—value placed on real and imagined side effects.
2. Individual preferences
    a. Attitude towards risk
    b. Length versus quality of life
    c. Perceived benefits and costs of particular treatment choice—information availability
    d. Health status—for example, people in fragile health may be more likely to seek care when their health status changes that otherwise healthy people. Or people with a particular genetic pattern may seek more care than those without it.
    e. Availability of tools and information that may help improve individual health.
    f. Value placed on privacy.
    g. Attitude towards following directions—adherence, impulse control, mental competence etc.
    h. Status quo bias
3. Income—extent to which level of income affects demand for medical care. (Note that income can be modified by subsidy, which is a separate topic).
    a. Effect of taxes on disposable income.
    b. Effect of wealth accumulation on demand for care.

Supply and Quantity Supplied—*Theory and Evidence on the motivation of physicians, hospitals, and other suppliers of health care on spending growth.*

1. Input Costs
    a. Labor
        i. Licensing requirements
        ii. Training requirements

iii. Recertification requirements

b. Capital
   i. Buildings
   ii. Finance
   iii. IT
   iv. Equipment

c. Non-durables used in treatment—drugs, supplies, etc.

d. Financial systems needed to get paid prevent fraud

2. Other Costs
   a. Taxes
   b. Liability
   c. Regulatory
      i. Reporting requirements
      ii. Process requirements—examples: electronic health records, required patient interview questions, specific discharge requirements, HIPAA requirements, other record keeping, controlled substances tracking, Medicare documentation requirements, Medicaid approvals, other insurer approvals, etc.
      iii.

3. Technology—what treatments are available and can be supplied. (Sample paper: Cutler and McClellan. 2001. Is technological change worth it? *Health Affairs* 20(5), 11-29.)
   a. New knowledge
      i. New products that enable new treatments
      ii. New uses for old treatments (antibiotics to treat ulcers, tighter blood sugar control to improve outcomes)
      iii. Process innovation—new knowledge that lowers production costs of existing products.
      iv. Learning by doing--
   b. Effect of new knowledge on spending growth
      i. Complementary services—innovations that improve outcomes when used with other services.
         1. Innovations that extend life—survivors live longer and will generally consume more health services, raising expenditures.
         2. Innovations that reduce risks of a particular treatment—this improves the benefit/cost ratio and will draw more people into having the treatment. Example: discovery of anesthesia increased the benefits from surgery.
      ii. Substitute services—innovations that allow substitutions of one treatment for another. Example: stents for revascularization, imaging for exploratory surgery.

4. Supply-side drivers of clinical decisions—
   a. Agency problems—conflicts between what is best for physician and what is best for patient
      i. Definition of appropriateness

ii. Effect of uncertainty—when trade-off between benefits and costs is not clear cut for any treatment would one expect wider variability in prescribed treatments and more physician utility maximization?
iii. Supplier induced demand—specifically when suppliers increase patient utilization by changing patients' desired treatments. Note that this cannot happen in a fully informed market. It requires information asymmetry.
    1. Suppliers increase patient demand for services
    2. Suppliers inappropriately reduce patient demand for services
iv. Defensive medicine
    1. Providing too much care to avoid lawsuits
    2. Providing too little care (stinting). Examples: avoiding high risk cardiac patients when report cards were introduced, obstetricians avoiding high risk women.

b. Framing, Choice, and Risk in decision making
    i. Risk aversion—status quo bias.
    ii. Cost of innovation
c. Resource/Capability Constraints
    i. System-level health care resource availability—availability of imaging, beds, specialists, lab tests, social support etc. all affect treatment decisions
    ii. Rate of information diffusion

Understanding Health Risk—and what can be done about it?

1. What is the variation in health care spending between people and over time?
    a. Observable characteristics which explain variation
    b. How much variation is predictable
        i. By insurers
        ii. By individuals
        iii. By regulators
    c. Variations in lifetime risk versus annual risk
    d. How much of the variation is modifiable? Is the cost worth it?
        i. Effectiveness of public health interventions
        ii. Changes in personal habits
        iii. Environmental modifications—roads, housing, cars, etc.
        iv. Are there any limits to risk modification attempts? Can people be forced to accept health care without permission? To what extent is it permissible to arbitrarily restrict their activities in the name of reducing health care costs/expenditure?
2. The effects of that various methods to change insurance/coverage premium variation have on equity, efficiency, and quality
    a. Allow insurers to charge risk-based premiums, subsidize high-risk individual via tax/transfer system.

   b. Community rating
   c. Develop public programs to target high risks (CoverColorado)
   d. Regulate degree to which premiums can vary with risk—Obamacare 3:1 variation.
   e. Administrative risk adjustment—the administrative adjustment of premiums paid to health plans based on perceived enrollee risk.
      i. Direct risk selection—using methods, some quite subtle to enroll only low risk applicants. Sign up is on the third floor of a building with no elevators.
      ii. Indirect risk selection—designing insurance products to repel high risks. Free gym membership but no endocrinologists.
         1. Choice of supply and demand utilization controls
         2. Differential rationing across different types of services
         3. Design services to achieve favorable selection.
3. Global questions about administrative risk adjustment and efficiency
   a. How well do risk adjustment models predict health risk?
   b. Are the data available to a regulator sufficient to allow estimation of relative costs in way that promotes efficiency?
   c. Can administered pricing arrive at efficient allocations among competing services—how does one know what the overall budget for health should be relative to roads or education when there is no consumer signaling mechanism?
   d. Can administered pricing take individual preferences into account? [sample paper: Brown *et al.* 2011.How Does Risk Selection Respond to Risk Adjustment? Evidence from the Medicare Advantage program. NBER Working Paper No. 16977. Finds that risk-adjustment in Medicare Advantage increased risk selection and transferred Medicare funding from the sick to the healthy.]
   e. Do the administered prices in Medicaid managed care reduce costs/expenditure?
   f. How do regulators measure whether they have gotten the administered prices right or wrong?
   g. Costs of running administered pricing systems.

The Effects of Different Methods of Subsidizing Health Care on Efficient Use of Health Care Resources

1. Types of Subsidies
   a. Direct to individual—cash and counseling model
   b. Direct to selected provider—public hospital model
   c. Third party payment--subsidize third party payer that then provides service to individual
2. Effect of each type of subsidy on provider payment
3. Difference between fee for service and capitated (per capita) payments on
   a. Patient care
   b. Other kinds of rationing—waiting, denial of care
   c. Effect of payment systems on provider behavior
      i. Productivity

ii. Risk selection
iii. Patient convenience
iv. Overall quality

Macro Supply and Demand--Competition in Health Care Markets

1. Effect of market power (the power to set prices) on price
    a. Hospital market power
    b. Integrated network market power
2. Effect of market concentration on market power (the power to set prices).
3. Effect of fixed costs, competitiveness of existing market, on market structure, cost of entry, and quality.
    a. Specialty hospitals
    b. New forms of practice (retail clinics, free standing EDs, imaging centers, outpatient surgery centers)
    c. With administered prices
    d. With market determined prices
    e. Does volume improve outcomes? Is there a point of diminishing returns?
4. Effect of organizational form on market behavior
    a. Not-for-profit
    b. For profit
    c. Religious

Considerations for Evaluating the Evidence Base:

1. Quality of data?
2. Likelihood that unobserved variables are confounding the results?
3. Size of observed treatment effect?
4. Importance of treatment effect?
5. Cost of treatment versus size of benefits?
6. Will results apply in a community setting?
7. Robustness of results across different samples, models, estimating procedures?
8. Cochrane reports? NICE reports?

Current assumptions that need validation:

1. Preventive care reduces overall expenditures/costs
2. Integrated care reduces overall expenditures/costs
3. Medicaid managed care reduces overall cost

4. Reducing days in hospital equals a reduction in cost
5. Accuracy of self-report
6. Accuracy of administrative records

Work Plan

A. Annotated Literature review of publications relating to research plan outline. [Estimated time frame—3 to 4 months]

B. Listing of State of Colorado Health Programs including at least [Estimated time: 6 months]

- **a.** Name
- **b.** Annual budget
- **c.** Where the money comes from
- **d.** People affected by the program
- **e.** Metrics used to evaluate program
- **f.** Estimated benefits on health. How arrived at.
- **g.** Fraction of program dependent on federal funds

C. Listing of Colorado state law and regulation affecting health care costs. [Estimated time: 3 months]

D. Structured survey of Colorado health care providers asking [Estimated time: ??}

- **a.** What are most costly regulatory requirements?
- **b.** What would they do to reduce the cost of providing their services?
- **c.** How could the regulatory structure be changed to improve services?
- **d.** How much of their budget do they receive from
    - **i.** State government (Medicaid etc)
    - **ii.** Federal government
    - **iii.** Individuals using services
    - **iv.** Third party payers
    - **v.** Entities not using services

E. Similar structured survey of people using the services asking

- **a.** What are their biggest health care costs?
    - **i.** Financial
    - **ii.** Non-financial—waiting etc.
- **b.** What would they like to see changed?
- **c.** What could be improved?
- **d.** Where do they get their health care?
- **e.** Who pays for their health care?